

ABSTRACT OF THE DISCLOSURE

An apparatus for forming a ultra-thin film of a semiconductor device includes: a reactive chamber consisting of an upper container and a lower container junctioned by an O-ring; a susceptor installed inside the reactive chamber for supporting a target substrate on which a ultra-thin film is to be formed; at least two gas supply pipes for respectively supplying at least two material gases into the reactive chamber to form a ultra-thin film on the substrate; gas supply controllers respectively installed at the gas supply pipes to repeatedly supply the material gases into the chamber; a gas outlet for discharging the gas from the chamber; remote plasma generators installed outside the reactive chamber and connected to the gas supply pipes for activating the material gases supplied through the gas supply pipes; and a temperature controller for controlling the temperature inside the chamber in a heat exchange method, the temperature controller being installed to surround the chamber. Even though the deposition method for alternately supplying the material gases is used, the deposition speed of the film can be quickened, so that the process time period for the fabrication of a semiconductor device can be shortened.